



# Risk Management at NASA and Its Applicability to the Oil & Gas Industry

## ***INTERNATIONAL REGULATORS' FORUM***

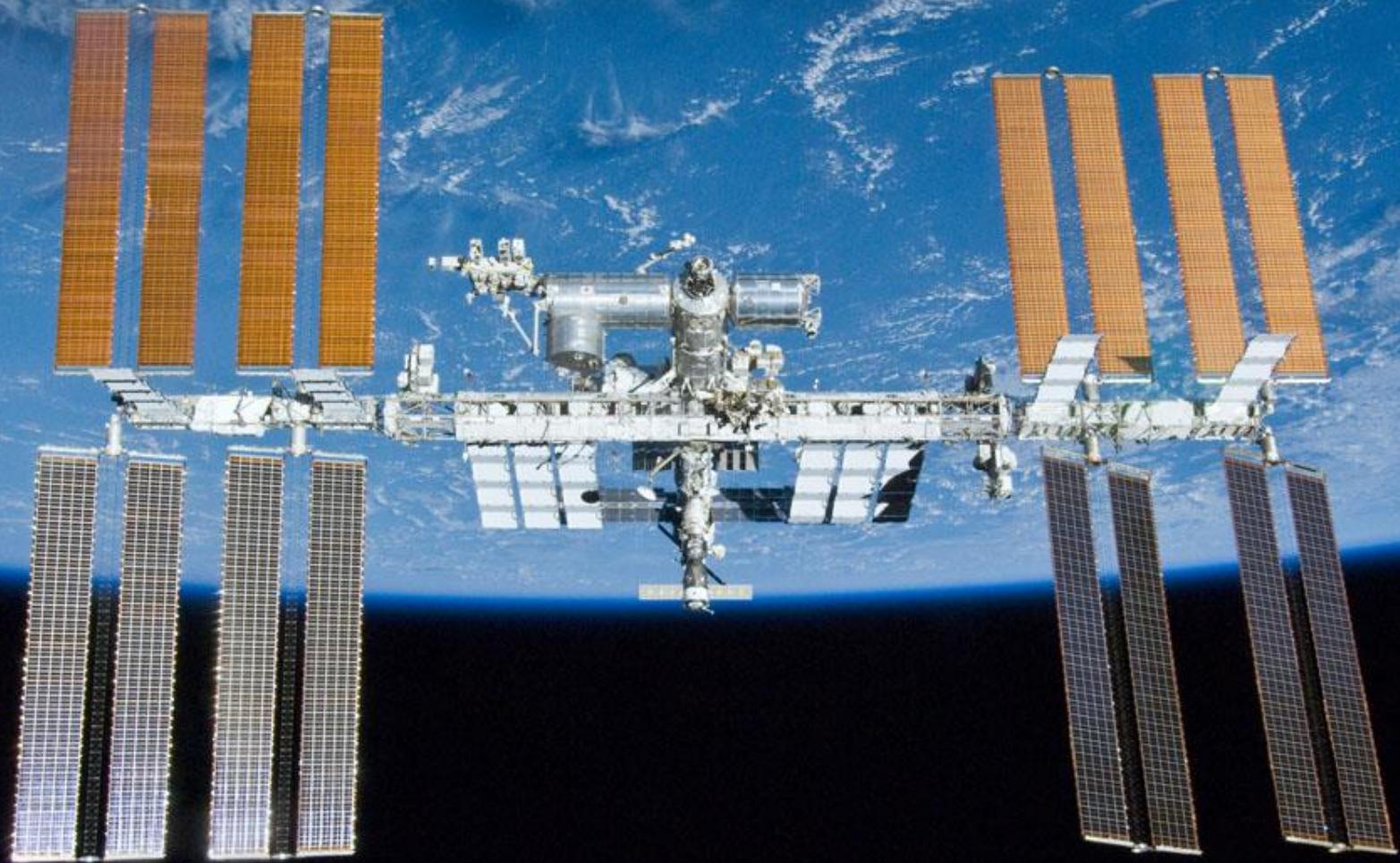
October 19, 2015

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# International Space Station

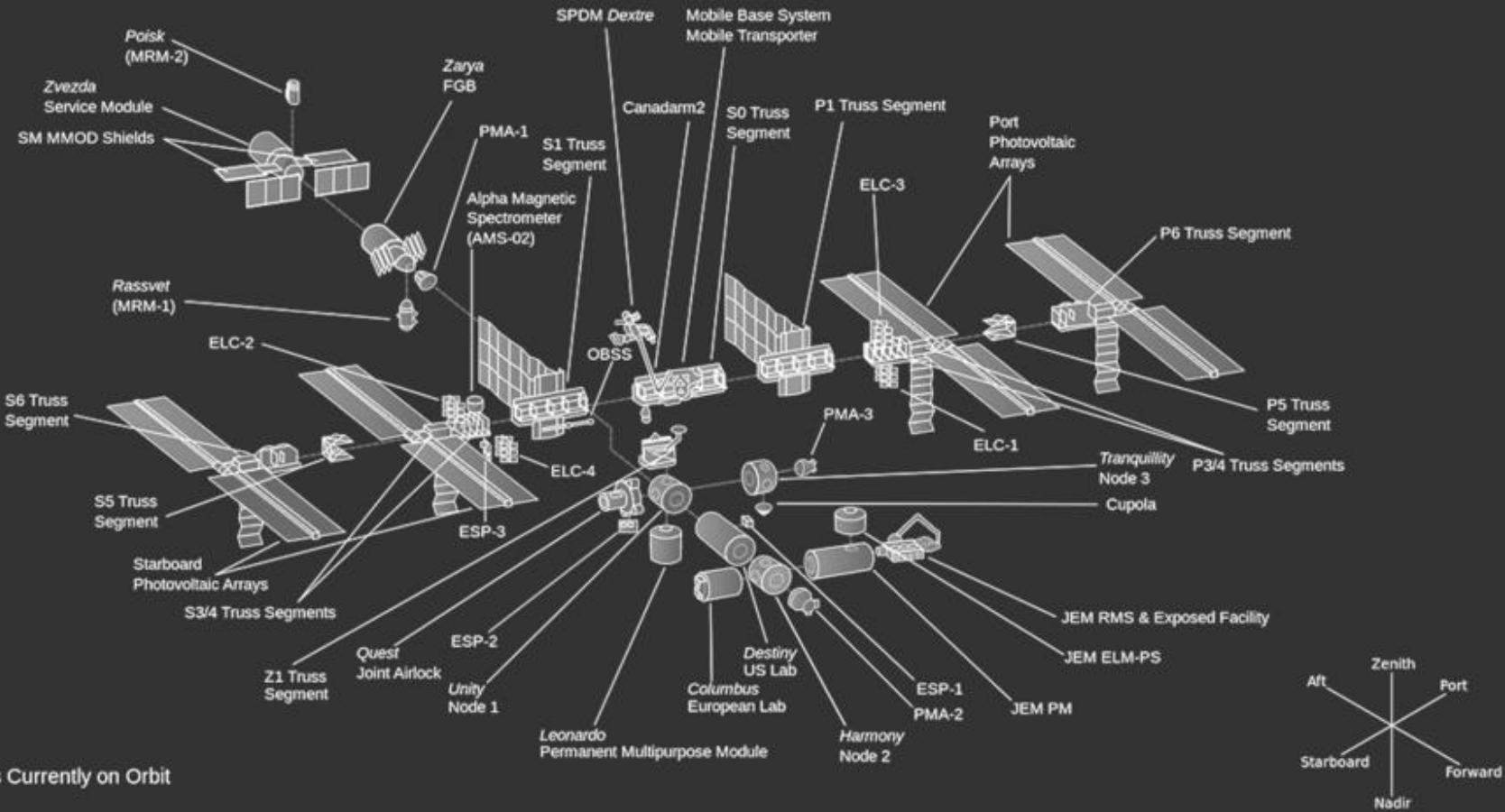


# International Space Station



## ISS Configuration

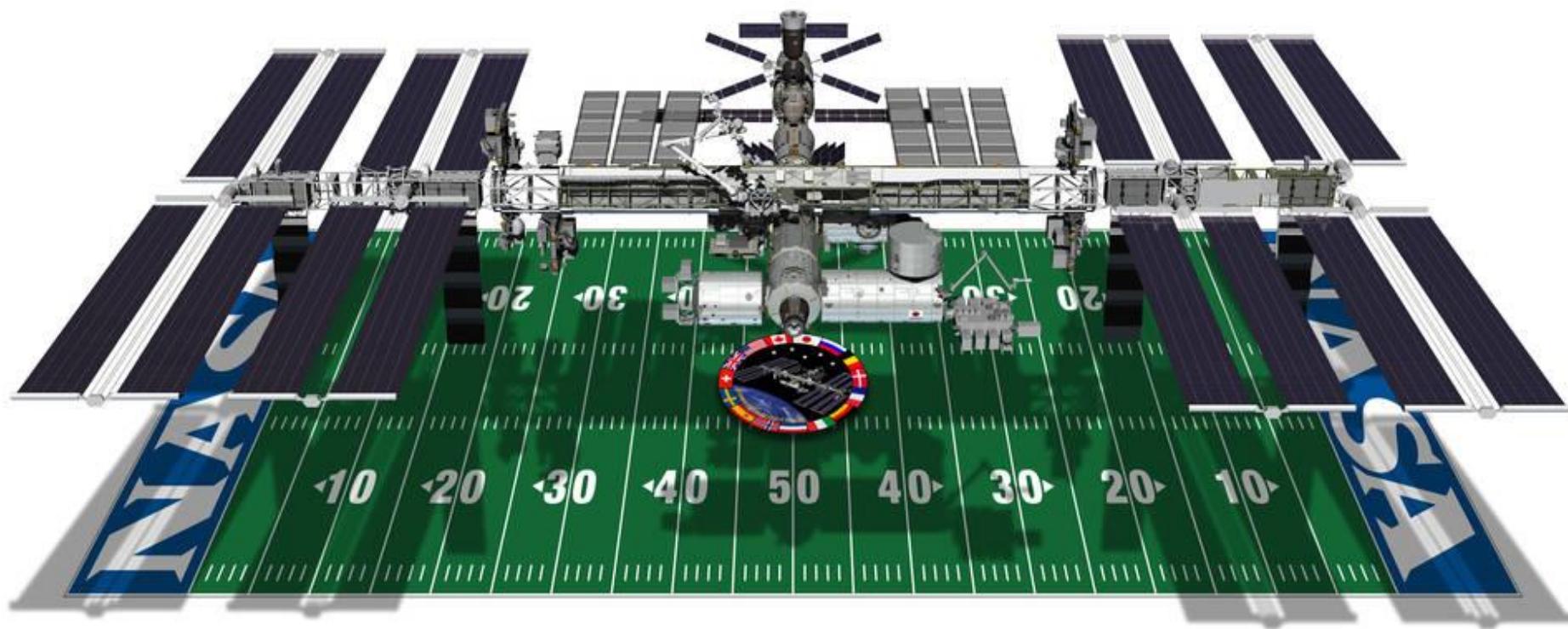
As of May 2011 (ULF6 - STS-134)



# International Space Station Assembly



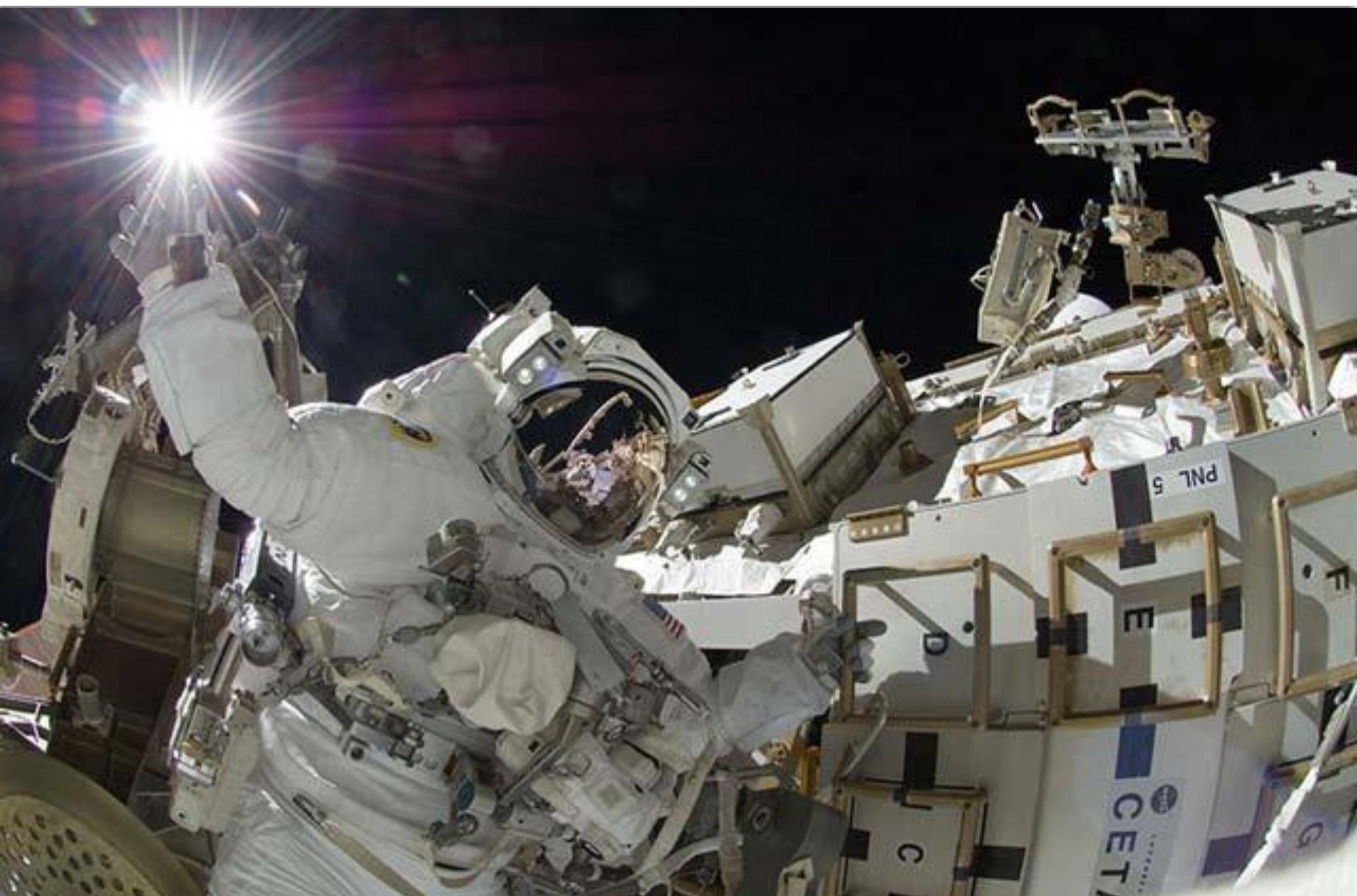
# International Space Station



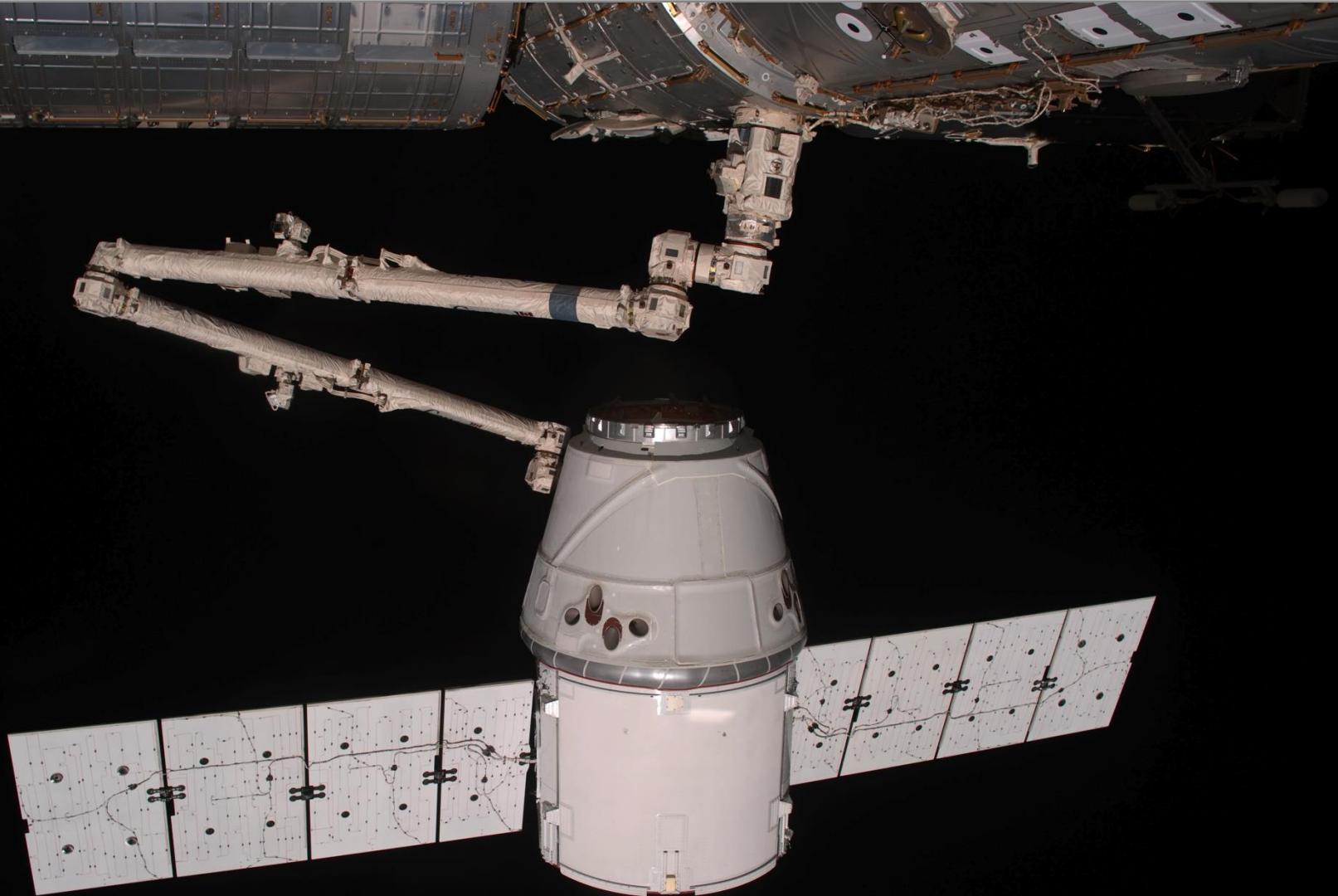
# Complex Operations Dependent on Human Involvement



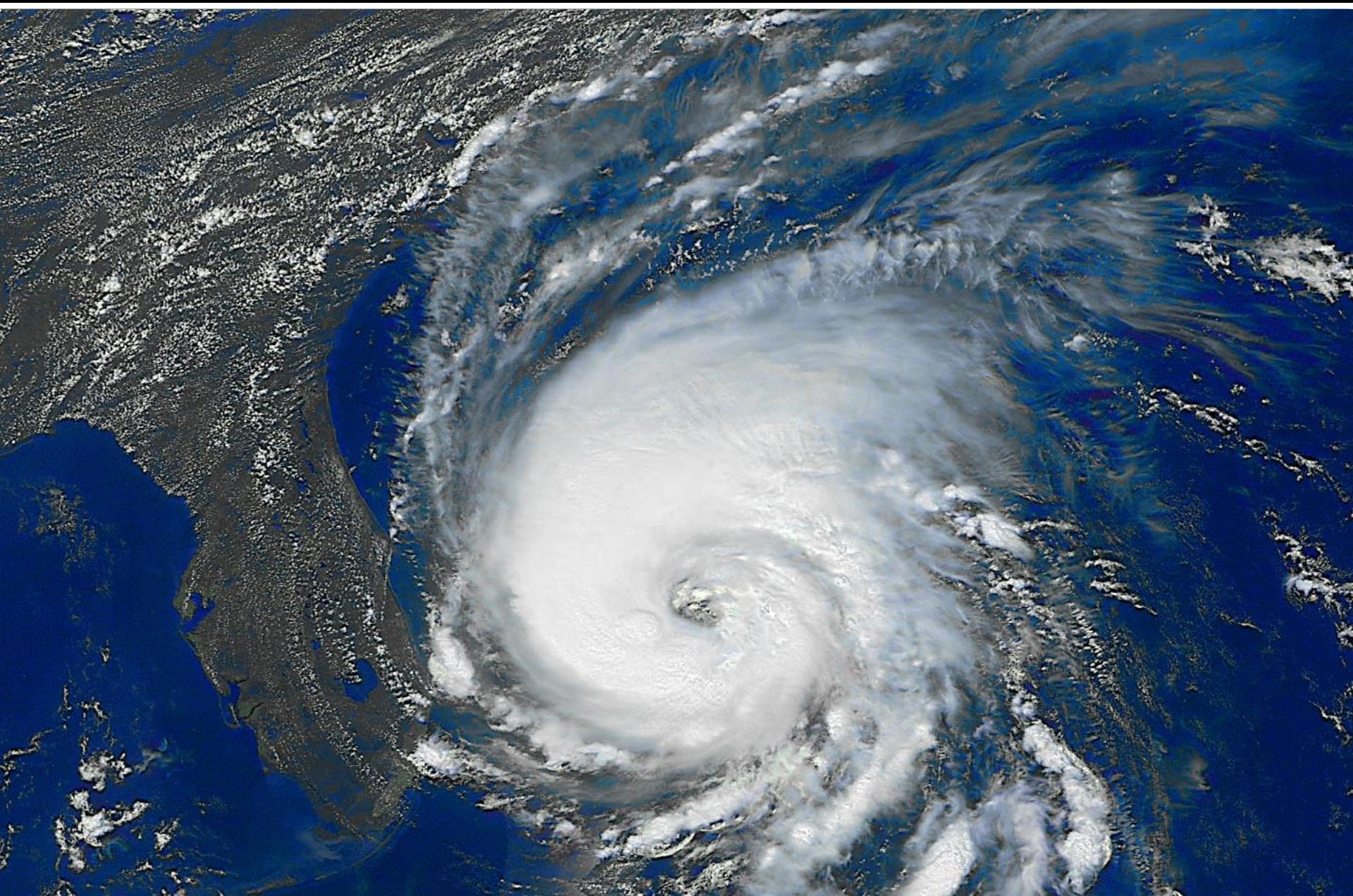
# Repair and Maintenance Operations in a Hostile Environment



# Ongoing Resupply Operations

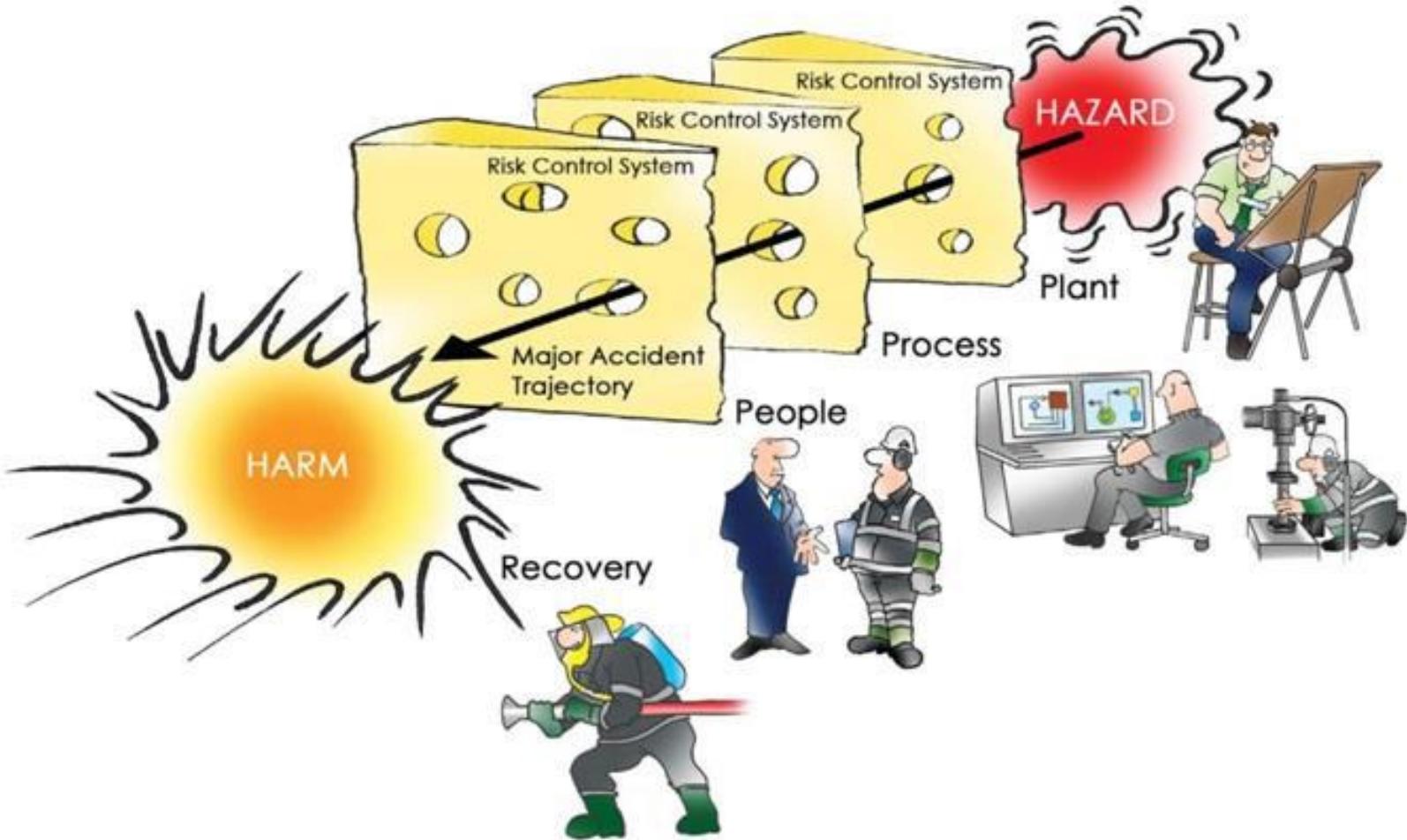


Isolated and Not Easily Accessible





# Barrier Based Risk Management

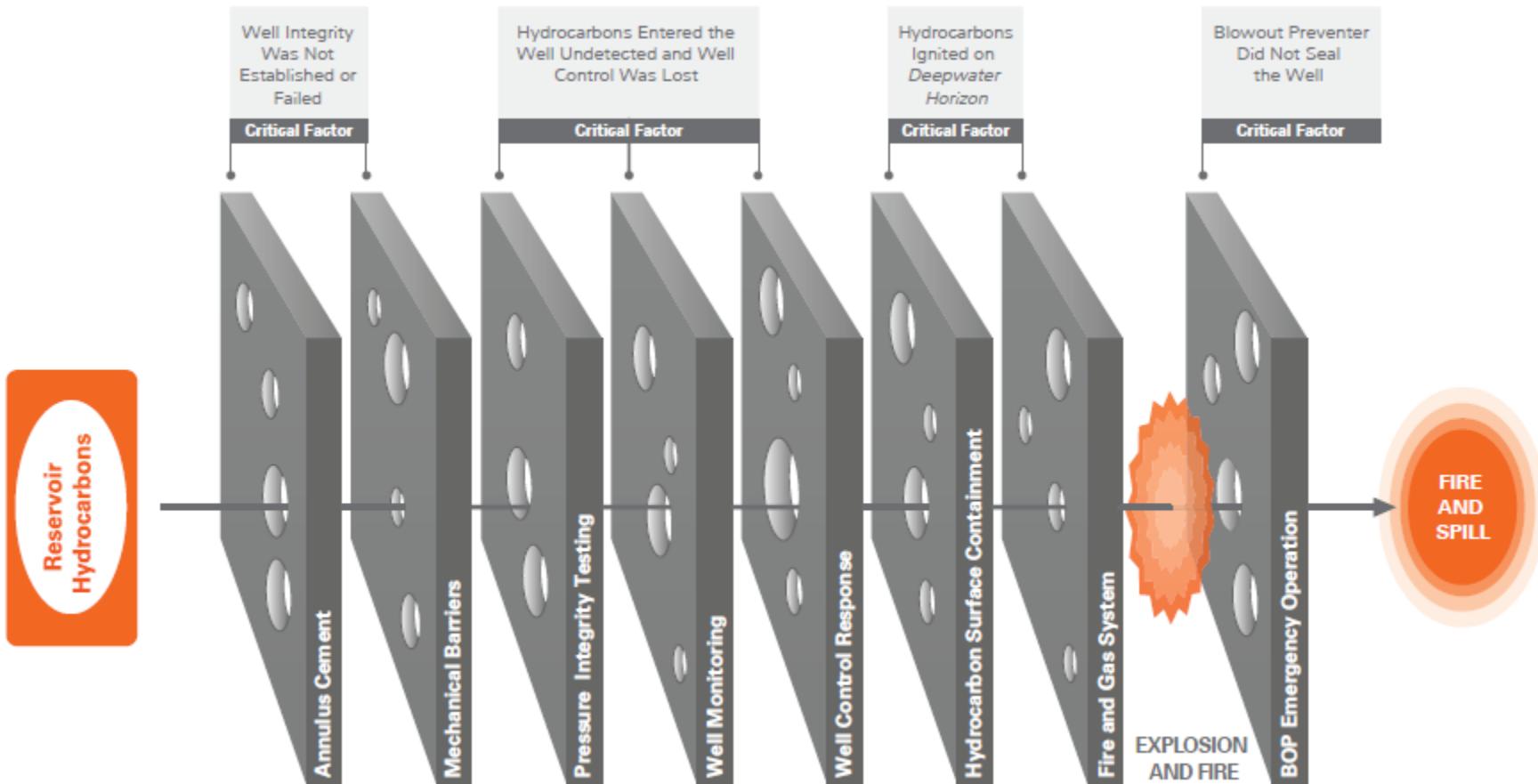


The Frontline Group™

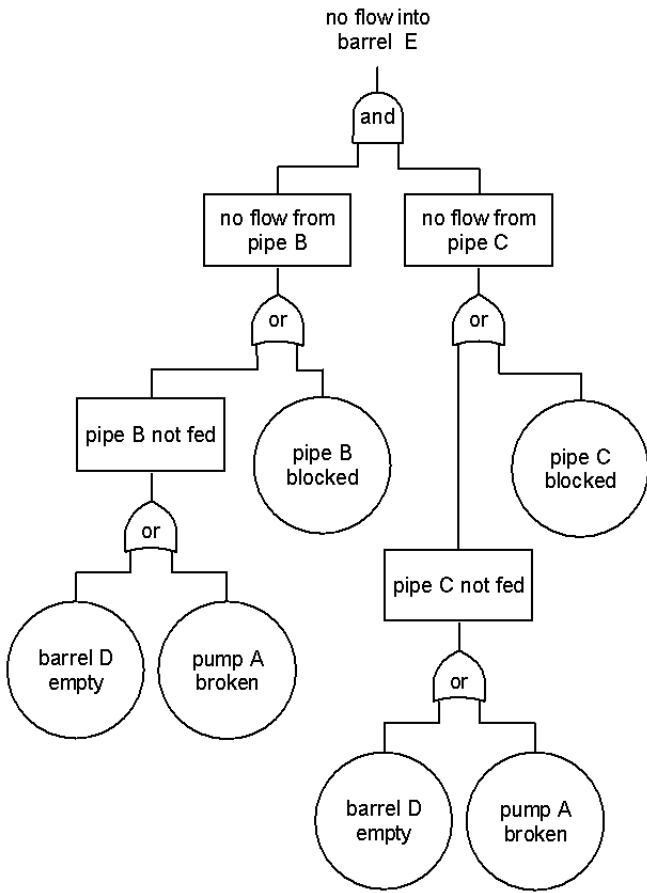
# Deepwater Horizon



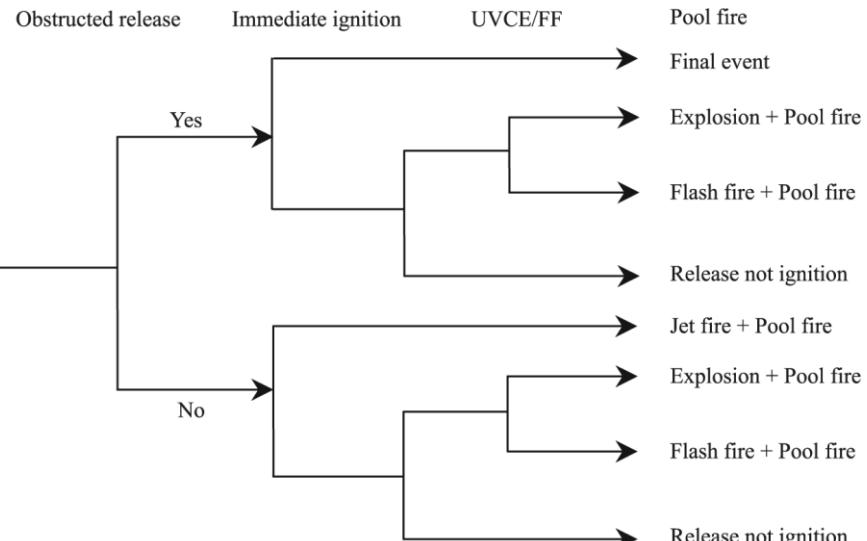
# Deepwater Horizon 8 Key Findings



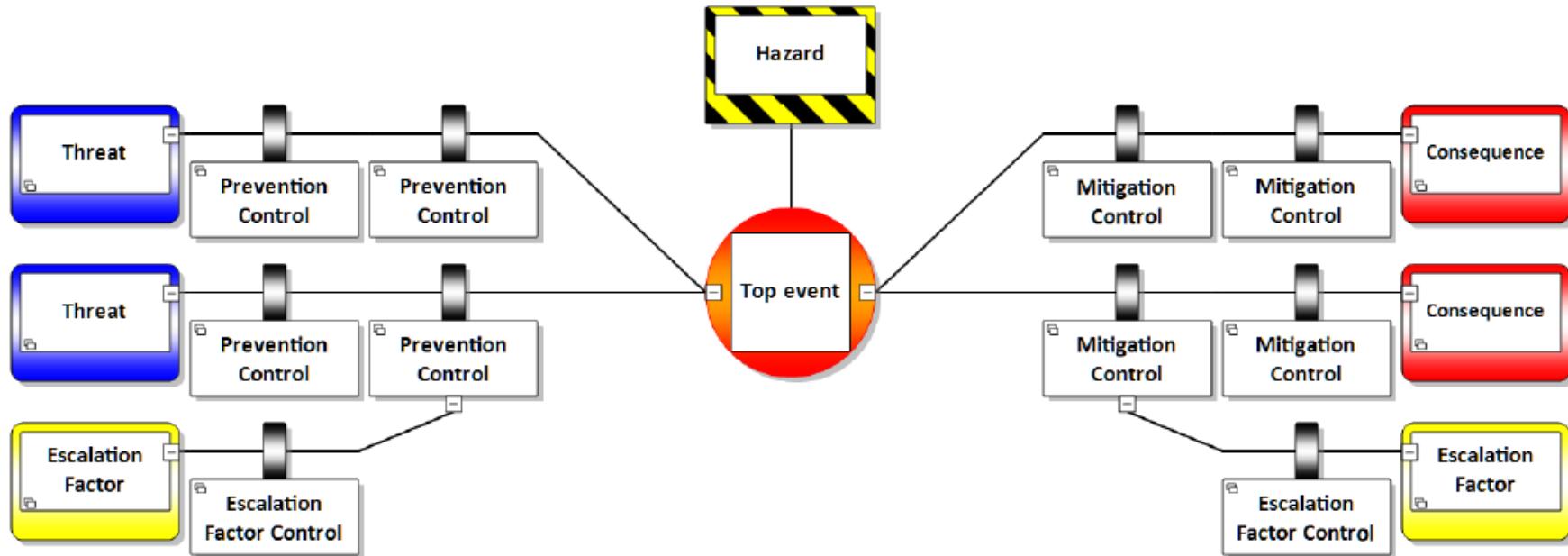
## Fault tree



## Event tree

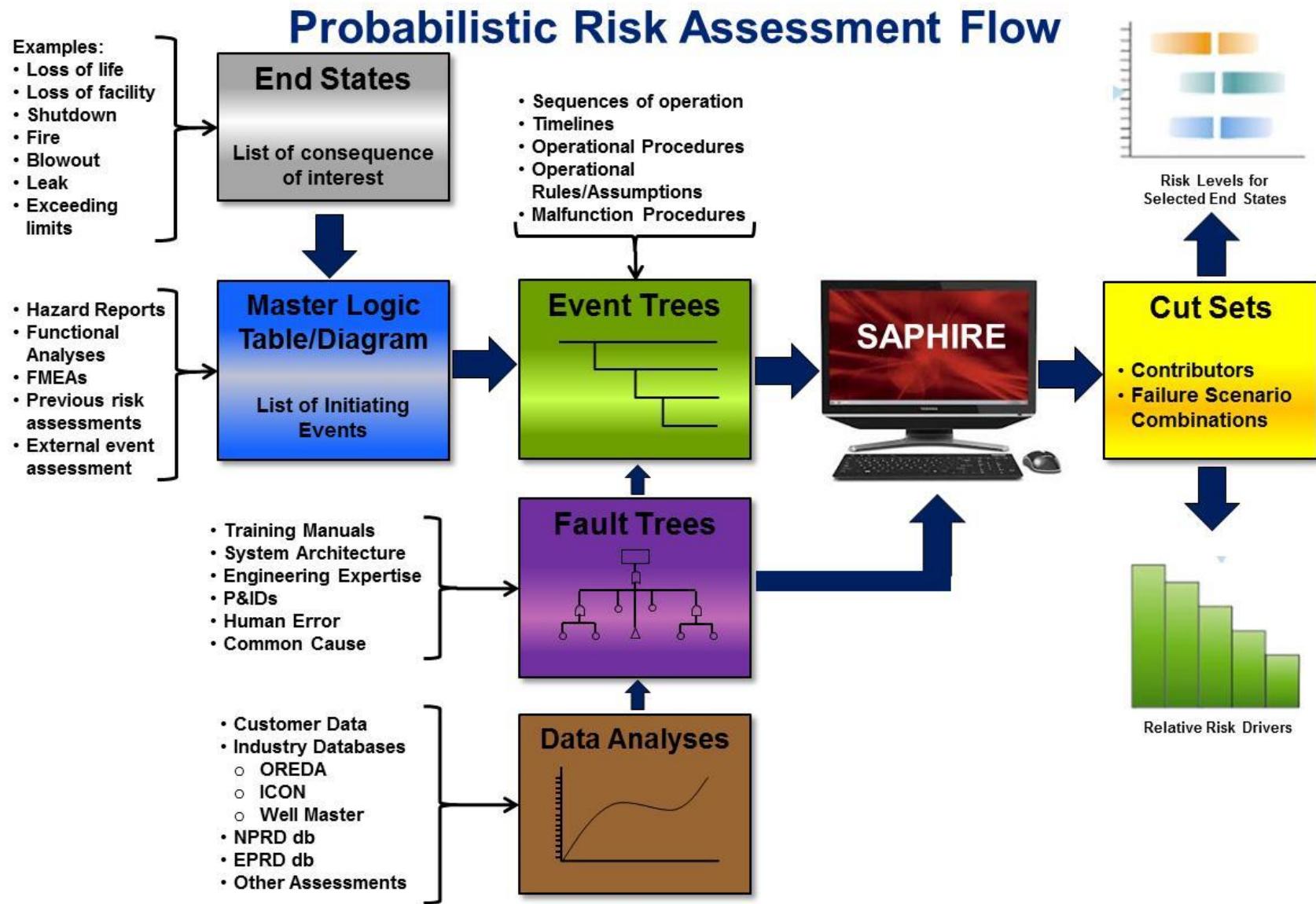


## Basic BowTie

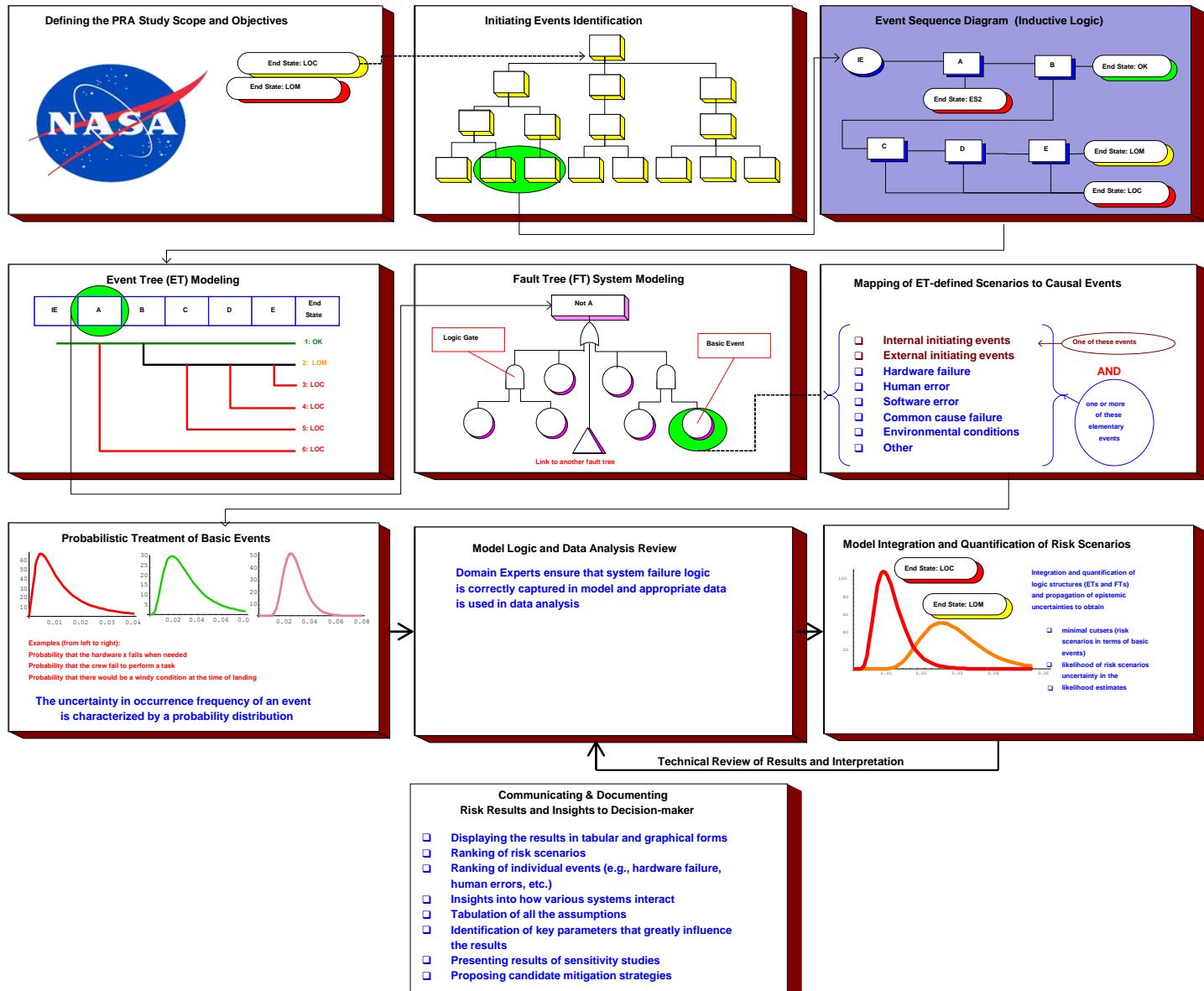




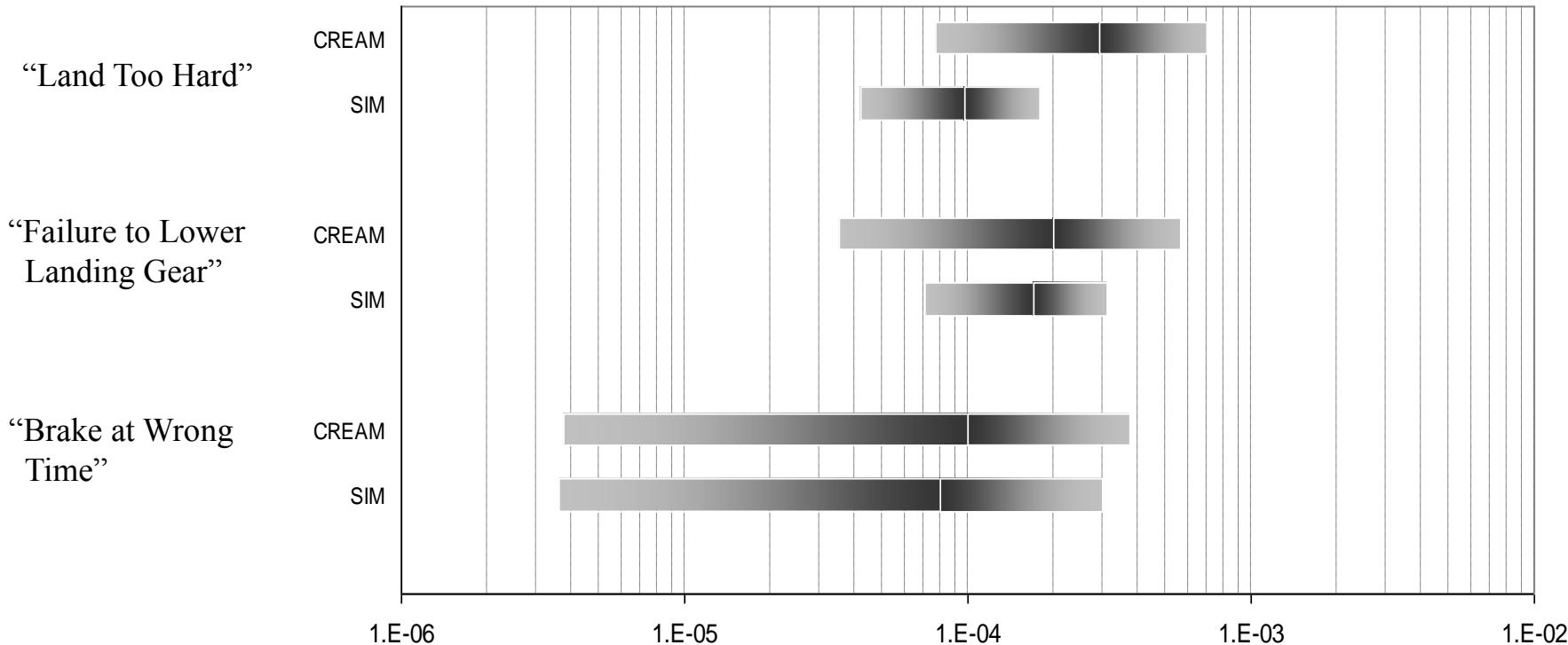
# Probabilistic Risk Assessment (PRA)



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## Comparison of Simulation Data and CREAM Results



The CREAM results have since been Bayesian updated using the simulator data

